



RECEIVED  
JUL 25 2003  
IC 1700

PATENT  
Customer No. 22,852  
Attorney Docket No. 08801.0082-01  
Formerly Attorney Docket No. 05788.0082-01

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of: )  
Zucchelli *et al.* ) Group Art Unit: 1714  
Application No.: 10/077,889 ) Examiner: Margaret B. Medley  
Filed: February 20, 2002 )  
For: Fuel Composition which Combusts )  
Instantaneously, Method and Plant )  
Therefore )

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**APPEAL BRIEF UNDER 37 C.F.R. § 1.192**

In support of the Notice of Appeal filed May 23, 2003, and pursuant to 37 C.F.R. § 1.192, Appellants present in triplicate this Brief and enclose herewith a check for the fee of \$320.00 required under 37 C.F.R. § 1.17(c).

This appeal is in response to the final rejection dated February 27, 2003, of claims 1-6, 9, 18, 23-28, 34-37, and 43, which are set forth in the attached Appendix.

This Brief is timely filed in view of the Notice of Appeal filed May 23, 2003. If any additional fees are required or if the enclosed payment is insufficient, Appellants request that the required fees be charged to Deposit Account No. 06-0916.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20004  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

00000094 10077889

320.00 0P

**I. Real Party In Interest**

The real party in interest is Pirelli Ambiente S.p.A, Via Faetano Negri, 10, 20123 Milano, Italy, by virtue of an assignment duly executed and recorded in U.S. Patent Application 09/301,309, filed April 29, 1999, now U.S. Patent No. 6,375,691, at reel 010104, frame 0069. The application-on-appeal is a continuing application claiming priority to the '309 application, and is subject to the assignment.

**II. Related Appeals and Interferences**

Appellants' undersigned legal representative knows of no other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**III. Status Of Claims**

Claims 1-6, 9-18, 23-28, 34-37, and 43 are pending in the application. Of these, claims 1, 10, 23, 34, 36, and 43 are independent. Claims 7, 8, 19-22, 29-33, and 38-42 are cancelled.

Claims 6-8, 18, and 28 stand rejected under 35 U.S.C. § 112, first paragraph.

Claims 23-28 stand rejected under 35 U.S.C. § 102(b) as being anticipated by France Patent No. 2,273,861 ("FR '861"), or alternatively, stand rejected under 35 U.S.C. § 103(a) as being obvious in view of FR '861.

Claims 1-6, 9-18, 23-28, and 34-36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,152,119 to Schulz in view of U.S. Patent No. 4,405,331 to Blaustein *et al.*

Claims 37 and 43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schulz in view of Blaustein *et al.*, and further in view of France Patent No. 2,733,303A.

#### **IV. Status Of Amendments**

No amendments were filed subsequent to the date of the Final Office Action, i.e., February 27, 2003.

#### **V. Summary Of Invention**

The pending application relates to a fuel composition, a combustion method, and a combustion plant for instantaneous combustion of waste, such as, for example, used plastic wrapping materials, tires and/or urban solid waste. Specification, page 2, lines 9-20. Including both a fossil fuel and a non-fossil solid fuel (NFSF), the instantaneously combusting fuel composition makes it possible to conserve large amounts of fossil fuels in the production of energy. Specification, page 1, lines 16-17; page 2, lines 16-17. Methane, fuel oil, and fossil coal dust are all typical examples of instantaneously combustible fossil fuels. Specification, page 3, lines 1-4. Suitable NFSFs may include urban solid waste, elastomeric and non-elastomeric polymer materials, and mixtures thereof. Specification, page 2, lines 16-20. Examples of suitable NFSF materials include elastomeric materials such as used tires, non-elastomeric polymer materials such as packaging and wrapping made of thermoplastic and/or thermosetting materials, and thermoplastic materials such as PE, LDPE, HDPE, PP, PET, polystyrene, ethylene/C<sub>4</sub>-C<sub>12</sub> .alpha.-olefin co-polymers, vinyl polymers and copolymers, and the like. Specification, page 6, lines 6-13.

Prior fuels and methods of combusting NFSFs for energy were cumbersome, required many steps for fuel preparation, and required extended burning times.

Specification, page 2, line 29-page 3, line 5. Accordingly, prior fuels could not be used to feed instantaneous-combustion burners. Specification, page 3, lines 6-8. The fuel of

the present invention, however, burns hot and efficiently in instantaneous combustion burners, reducing reliance on fossil fuels alone. Specification, page 3, lines 14-17.

In its first aspect, the present invention relates to a fuel composition which combusts instantaneously, comprising from 40 to 95% by weight of an instantaneously combustible fossil fuel and from 60 to 5% by weight of an NFSF chosen from the group comprising urban solid waste, elastomeric and non-elastomeric polymer materials and mixtures thereof, this fuel being suitably treated so as to be instantaneously combustible. Specification, page 3, lines 18-56. The term "instantaneous combustion" is used to indicate a combustion which includes the combustion of at least 90% by weight of the fuel material fed into a burner in less than 10 seconds. Specification, page 3, lines 35-38.

The amount of instantaneously combustible fossil fuel may be between 50 and 90% by weight and that of the NFSF may be between 50 and 10% by weight. Alternatively, the amount of instantaneously combustible fossil fuel may be between 60 and 80% by weight and that of the NFSF may be between 40 and 20% by weight. Specification, page 3, lines 27-33.

In its second aspect, the present invention relates to a fuel composition which combusts instantaneously, comprising from 40 to 95% by weight of an instantaneously combusting fossil fuel and from 60 to 5% by weight of particles smaller than 1 mesh (15 mm) in size of a fuel material chosen from the group comprising urban solid waste ("USW"), elastomeric and non-elastomeric polymer materials, and mixtures thereof. Preferably, at least 90% by weight of the abovementioned particles are smaller than 2 mesh (7.5 mm) in size. Even more preferably, at least 50% by weight of the

abovementioned particles are smaller than 4 mesh (3.75 mm) in size. Specification, page 6, lines 14-26.

Furthermore, in the second aspect of the invention, the amount of instantaneously combusting fossil fuel is preferably between 50 and 90% by weight and that of the fuel material is between 50 and 10% by weight. Even more preferably, the amount of instantaneously combusting fossil fuel is between 60 and 80% by weight and that of the fuel material is between 40 and 20% by weight. Specification, page 7, lines 11-19.

In its third aspect, the present invention relates to a combustion method in which the flame of a burner of an instantaneous-combustion boiler is fed with a flow of instantaneously combusting fuel material. The instantaneously combusting fuel material comprises from 40 to 95% by weight of an instantaneously combusting fossil fuel and from 60 to 5% by weight of a fuel material chosen from the group comprising USW, elastomeric and non-elastomeric polymer materials and mixtures thereof. The fuel material has been suitably treated so as to be instantaneously combustible. Specification, page 7, line 36-page 8, line 6.

Typically, the fuel material is instantaneously combustible when it consists of particles less than 1 mesh (15 mm) in size. Preferably, at least 90% by weight of the abovementioned particles are less than 2 mesh (7.5 mm) in size. Even more preferably, at least 50% by weight of the abovementioned particles are less than 4 mesh (3.75 mm) in size. The elastic polymer, if present, is preferably in the form of granules less than 5 mm in size. Specification, page 8, lines 14-22.

The method of the present invention is particularly suitable for running power plants, i.e. plants generally dedicated to the production of steam for the production of electrical energy and/or for remote heating. Specification, page 8, lines 34-38.

In another embodiment, the combustion method includes feeding an instantaneously combusting fuel material, comprising at least one fossil fuel and a non-fossil fuel chosen from the group comprising USW, elastomeric and non-elastomeric polymer materials and mixtures thereof, into a zone of a boiler. The boiler is maintained at a temperature such that the level of non-combusted materials in the heavy ash is maintained at less than 50% by weight. Specification, page 9, lines 5-13.

In another embodiment thereof, the combustion method includes feeding a boiler with an instantaneously combusting fuel material comprising at least one fossil fuel and a non-fossil fuel chosen from the group comprising USW, elastomeric and non-elastomeric polymer materials and mixtures thereof. The particle size of the non-fossil fuel may be predetermined such that the level of the non-combusted materials in the heavy ash is maintained at less than 50% by weight. Specification, page 9, lines 14-23.

In its fourth aspect, the present invention relates to a plant for the instantaneous combustion of at least one instantaneously combusting fossil fuel, including a boiler, at least one burner, a combustion zone and a system for feeding in at least one instantaneously combusting fossil fuel. It also includes a device for feeding an NFSF into the combustion zone. Specification, page 9, lines 24-32.

A power plant suitable for generating steam using an instantaneous combustion fuel material is shown in FIG. 7. Specification, page 11, lines 1-10. This includes a boiler (18A) having a plurality of burners (12). In a combustion zone (11) defined in

correspondence with the burners (12), a temperature typically between 1500 and 2000 °C is maintained. The vapors arising from the combustion zone (11) arrive at a vapor exit zone (18B) in the top of the boiler (18A). Next, the vapors cross a plurality of heat exchangers (15, 16) to which they give up heat to generate steam for remote heating and/or for actuating one or more turbines for the production of electrical energy.

Specification, page 11, line 21-page 12, line 16.

A fraction (23) of the flow of air (25) acts as a means of transporting a finely ground coal to the boiler (18A) in which typically 99% of the particles are less than 100 mesh and 77% are less than 200 mesh in size. In order to produce this coal dust, a mill (45) is fed with coarse-sized coal obtained from a silo (44). Supply flows (42A) and (43A) of methane and fuel oil, originating, respectively, from a methane gas distribution network (42) and from a heated tank (43) of fuel oil, also arrive at the burners (12). For simplicity, in FIG. 7 only one system for supplying methane gas, fuel oil and coal dust to the entire array of burners (12) has been represented. Specification, page 12, line 33-page 13, line 12. A person skilled in the art will appreciate that the scheme represented in FIG. 7 has been given purely by way of illustration and that many other specific forms of plant embodiments can be envisaged. Specification, page 13, line 15-19.

## **VI. Issues**

The issues in this Appeal are:

Whether the Office's final rejection of claims 1-6, 9-18, 23-28, and 34-36 under 35 U.S.C. § 103(a) as being unpatentable over Schulz in view of Blaustein *et al.* can be sustained when neither Schulz nor Blaustein *et al.* teaches or suggests the claimed feature that "at least 90% by weight of the fuel composition fed into a burner is

combusted in less than 10 seconds” and neither Schulz nor Blaustein *et al.* relates to instantaneous-combustion burners.

Whether the Office’s final rejection of claims 23-28 under 35 U.S.C. § 102 as being anticipated by, or alternatively, under 35 U.S.C. § 103(a) as being unpatentable over, France Patent No. 2,273,861 when the FR ’861 patent fails to disclose, teach, or suggest the claimed method step of “urban solid waste non-fossil fuel feeding.”

Whether the Office’s final rejection of claims 37 and 43 under 35 U.S.C. § 103(a) as being unpatentable over Schulz in view of Blaustein *et al.* and further in view of French Patent No. 2,733,303 (“FR ’303”) can be sustained when none of Schulz, Blaustein *et al.*, and FR ’303 teaches or suggest a combustion plant where “a burner is fed with a flow of at least one instantaneously combusting fossil fuel, and where a flow of at least one instantaneously combusting non-fossil fuel is fed into a flow of at least one instantaneously combusting fossil fuel,” and when none of the references relate to instantaneously combusting non-fossil fuel.

Finally, whether the Office’s final rejection of claims 6, 18, and 28 under 35 U.S.C. § 112, first paragraph, for allegedly containing new matter can be sustained based on the originally filed, specification, claims, and drawings of the application and the ordinary skill of one in the art.

## **VII. Grouping Of Claims**

Of the claims on appeal, claims 1, 10, 23, 34, 36, and 43 are the independent claims. The claims on appeal do not stand or fall together. These claims should be considered in six groups:

Group I: 1-5 and 9-17;

Group II: 34-36;



Group III: 23-27;

Group IV: 37 and 43;

Group V: 6 and 18; and

Group VI: 28.

Group I includes claims directed to a fuel composition. Group II includes claims directed to a combustion method. Group III includes claims directed to a combustion method where the non-combusted materials are contained in heavy ash. Group IV includes claims directed to a plant for combusting a fuel composition. Group V includes claims reciting types of fossil fuels for use in the fuel compositions. Group VI includes a claim reciting types of fossil fuels for use in a combustion method.

The claims in Groups I and II are subject to the same ground of rejection on the same art. Also, the claims in Groups V and VI are subject to the same ground of rejection. However, Appellant considers these groups of claims to be separately patentable at least for the reasons stated in the argument section below. The claims in Group III and Group IV are subject to separate grounds of rejection based on different art than any other group. Pursuant to 37 C.F.R. § 1.192(c)(7), the claims on appeal do not stand or fall together and should be considered as grouped above.

#### **VIII. Argument**

**A. Claims 1-6, 9-18, 23-28 and 34-36 are patentable over Schulz in view of Blaustein because Schulz and Blaustein do not establish a *prima facie* case of obviousness.**

Claims 1-6, 9-18, 23-28 and 34-36 are not unpatentable under 35 U.S.C. § 103(a) in view of U.S. Patent No. 4,152,119 to Schulz and U.S. Patent No. 4,405,331 to Blaustein *et al.* ("Blaustein"). The combination of Schulz and Blaustein fails to establish a *prima facie* case of obviousness. To establish a *prima facie* case of

obviousness, three basic criteria must be met. First, there must be some suggestion or motivation to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference(s) must teach or suggest all the claim limitations. M.P.E.P. §2143 (8<sup>th</sup> ed. 2001). Both the suggestion and the reasonable expectation of success must be found in the prior art, not in the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Using an applicant's disclosure as a blueprint to reconstruct the claimed invention from isolated pieces of the prior art references contravenes the statutory mandate of § 103, which requires determining obviousness at the time the invention was made. *See Grain Processing Corp. v. American Maize-Prods. Co.*, 840 F.2d 902, 907, 5 U.S.P.Q.2d 1788, 1792 (Fed. Cir. 1988).

- 1. The combination of Schulz and Blaustein does not teach or suggest that 90% by weight of the fuel composition is combusted in less than 10 seconds, as set forth in claims 1-6, 9-18, 23-28, and 34-36.**

Independent claims 1 and 10 each include the feature that "at least 90% by weight of the fuel composition fed into a burner is combusted in less than 10 seconds." Likewise, independent claim 23 recites the method step of "combusting at least 90% by weight of said fuel composition fed into the burner in less than 10 seconds." Independent claims 34 and 36 each recite a fuel composition including an "instantaneously combusting fossil fuel." As described in the specification, an "instantaneously combusting fuel" is a fuel which includes the combustion of at least 90% by weight of the fuel material fed into a burner in less than 10 seconds. *See* Specification, page 3, lines 35-38.

The Schulz and Blaustein references, alone or in combination, do not teach or suggest a fuel composition or method for combusting at least 90% by weight of a fuel composition fed into a burner in less than 10 seconds. The Office asserts that this claimed feature is inherent in the references because they allegedly teach fuel compositions having the same components and in the same relative proportion as the claimed fuel composition. This position, however, is untenable based on the additional teachings of the references, as they would be understood by those skilled in the art.

“To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference.... Inherency, however, may not be established by probabilities or possibilities.’” M.P.E.P. § 2112, *citing* *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999).

Schulz teaches a fuel precursor consisting of an agglomerated composition in the form of briquettes or pellets having a diameter from 1” to 12”. Schulz, column 5, lines 33-47. The composition includes a nearly negligible amount of rubber as elastomeric material, that, combined with leather, amounts to only 1.3% of the municipal solid waste. Schulz, column 8, lines 36-41. The agglomerated composition serves as feed material or “burden” on a moving grate or in a shaft furnace, used for the production of a synthesis or fuel gas. Schulz, column 2, lines 24-27; column 10, lines 59-63; column 12, lines 1-8; abstract. The gasification step takes 45 minutes in Example 1 (Schulz, column 8, lines 60-62), 60 minutes in Example 3 (Schulz, column 9, line 50), and 85 minutes in Example 9 to consume 75% of the charge (Schulz, column 12, lines 9-11). The presently pending claims require 90% by weight of the fuel composition to be combusted in less than 10 seconds.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

Blaustein discloses a fuel material comprising solid refuse, fly ash, and a binder. Blaustein, column 2, lines 17-20. The fuel material is agglomerated in the form of pellets  $\frac{3}{4}$ " in diameter by  $\frac{3}{4}$ " long or  $\frac{5}{8}$ " in diameter 1" long. Blaustein, column 4, lines 29-30; Examples 1-31. Blaustein does not teach or suggest any elastomeric material in its fuel material. Further, Blaustein is silent about the combustion apparatus and methods, much less the combustion times. However, one skilled in the art working with Schulz would understand that at least the "combusting at least 90%. . . . in less than 10 seconds" limitation is neither taught nor suggested. The Specification clearly distinguishes the instant invention over apparatus and methods for combusting agglomerated fuel materials for a period of time greater than or equal to one (1) minute. Indeed, owing to their dimensions, the agglomerated fuel materials simply cannot be used to feed "instantaneous-combustion burners." Specification, page 2, line 26-page 3, line 17; page 6, line 15-page 7, line 10.

The combination of Schulz and Blaustein do not teach or suggest all the features of the claimed invention. For example, they do not teach or suggest, explicitly or inherently, combusting at least 90%. . . . in less than 10 seconds," as recited in independent claims 1, 10, and 23, and as claimed by the recitation "instantaneously combustible fuel," in independent claims 34 and 36.

Furthermore, the Office's assertion that the references teach fuel compositions having the same components and in the same relative proportion as the claimed fuel composition is unfounded. Schulz does not even teach a fuel, but instead teaches the agglomerated composition as a fuel precursor. This precursor may be used to produce a synthesis or fuel gas. See Schulz, abstract. Typically, such gas may be used as a

raw material in the synthesis of organic compounds, or may be distributed as a fuel gas. Further, Schulz's fuel composition includes a nearly negligible amount of rubber as elastomeric material, that, combined with leather, amounts to only 1.3% of the municipal solid waste. Schulz, column 8, lines 36-41. Blaustein does not teach or suggest any elastomeric material in its fuel material. Because of these differences, the fuel compositions taught by the references do not necessarily have all the same components in the same relative proportion as the disclosed fuel composition, and therefore, the claimed features are not necessarily inherent in the cited art. Consequently, independent claims 1, 10, 23, 34, and 36 are allowable over the combination of Schulz and Blaustein.

**2. There is no motivation or suggestion to modify either Schulz and Blaustein to include all the features of independent claims 1, 10, 23, 34, and 36.**

Second, the Office has failed to establish any motivation or suggestion to modify either Schulz or Blaustein to arrive at the presently claimed invention. The threshold for establishing a teaching, motivation or suggestion to modify or combine prior art references is high. The Federal Circuit has clearly stated that the evidence of a teaching, suggestion, or motivation to modify or combine references must be "clear and particular." *In re Dembicziak*, 175 F.3d 994, 999 (Fed. Cir. 1999).

During the prosecution of this application, the Office has failed to provide any "objective evidence" showing that there would have been any teaching, suggestion or motivation to modify either Schulz or Blaustein to include all the features of the claims, let alone "clear and particular" evidence or a "thorough and searching" factual inquiry of such.

Because there is no motivation to modify the fuels taught by Schulz and Blaustein, they do not render independent claims 1, 10, 23, 34, and 36 unpatentable.

- 3. The combination of Schulz and Blaustein do not teach or suggest a predetermined temperature value being selected so that non-combusted materials are contained in the amount of heavy ash in an amount of less than 50% by weight, as recited in claims 34 and 36**

Claims 34-36 are directed to combustion methods, not compositions, and therefore, are grouped separately from the compositions of claims 1-6 and 9-18. In addition to reciting the patentable features described above, claim 34 patentably distinguishes the present invention from Schulz and Blaustein, considered either alone or in combination, because it recites a combustion method comprising the steps of, for example, feeding a fuel composition into a zone of a boiler, said zone having predetermined temperature value ... wherein said predetermined temperature value is selected so that non-combusted materials are contained in said amount of heavy ash in an amount of less than 50% by weight.

In contrast, none of the references teaches or suggests the claimed predetermined temperature value being selected so that non-combusted materials are contained in the amount of heavy ash in an amount of less than 50% by weight. Schulz teaches a composition and method of making briquettes or compacted fuel made of caking coal and municipal solid waste ("MSW"). Similarly, Blaustein teaches a composition and method of making refuse derived fuel formed in the shape of pellets by extrusion or compression means. Neither Schulz nor Blaustein discloses, teaches, or suggests any temperature for the feeding zone of a boiler so that non-combusted materials are contained in the amount of heavy ash in an amount of less than 50% by weight.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

Claim 36 patentably distinguishes the present invention from the references cited, including Schulz and Blaustein, considered either alone or in combination, because it recites a combustion method comprising the steps of, for example, generating an amount of heavy ash from the combustion step, wherein the non-fossil fuel has a predetermined particle size so that non-combusted materials are contained in the amount of heavy ash in an amount of less than 50% by weight.

Neither Schulz nor Blaustein teaches or suggests the claimed combustion method. Particularly, neither Schulz nor Blaustein teaches or suggests the step of generating an amount of heavy ash wherein the non-fossil fuel has a predetermined particle size so that non-combusted materials are contained in the amount of heavy ash in an amount of less than 50% by weight.

Therefore, independent claims 34 and 36 do not recite subject matter that is rendered obvious by either Schulz or Blaustein, and thus are in condition for allowance.

Claims 2-6, 9, 11-18, 24-28 and 35 depend from and add additional features to independent claims 1, 10, 23, and 34. Accordingly, these claims are patentable for at least the reasons that the independent claims are patentable.

**B. Claims 23-28 are patentable over FR '861 because they recite a fuel composition including an urban solid waste.**

Claims 23-28 also stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or, in the alternative under 35 U.S.C. § 103(a), as being obvious over, French Patent No. 2,273,861 ("FR '861"). Because claims 23-28 are subject to a rejection based on art that is different than art used to reject any of the other groups of claims, they stand alone as a separate group. Independent claim 23 is patentably distinguishable from FR '861 because it recites a combustion method comprising the steps of, for example,

feeding the flame of a burner of an instantaneous-combustion boiler with a flow of fuel composition, and combusting at least 90% by weight of the fuel composition fed into the burner in less than 10 seconds. The fuel composition includes from 40 to 95% by weight of an instantaneously combusting fossil fuel, and from 60 to 5% by weight of a non-fossil solid fuel including urban solid waste and at least a further component selected from the group consisting of elastomeric polymer materials, non-elastomeric polymer materials, and mixtures thereof, which has been suitably treated so as to be instantaneously combustible.

FR '861 does not disclose the combustion method of claim 23 at least because FR '861 does not disclose feeding a flame of a burner with a non-fossil fuel including urban solid waste. Because FR '861 does not disclose a fuel including an urban solid waste, FR '861 does not anticipate claim 23.

Additionally, FR '861 does not render obvious independent claim 23 because it does not teach or suggest all the features of claim 23. FR '861 does not teach or suggest a fuel including an urban solid waste. Nor does FR '861 suggest combusting a fuel including an urban solid waste. As set forth above, a *prima facie* case of obviousness requires that there must be some suggestion or motivation to modify the reference or to combine reference teachings; a reasonable expectation of success; and the prior art references must teach or suggest all the claim limitations. Both the suggestion to modify must be found in the prior art reference, not in the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). In this instance, the FR '861 does not provide any motivation for modifying the reference to include the features recited in independent claim 23. No teaching in FR' 861 suggests a

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com



fuel composition including urban solid waste, as recited in claim 23. Accordingly, the requirement that the motivation to modify the reference be found in the prior art is not met. Because FR '861 does not teach or suggest combusting a fuel including an urban solid waste, FR '861 does not render claim 23 unpatentable.

Claims 24-28 depend from and add additional features to independent claim 23. Accordingly, these claims are patentable for at least the reasons that the claim 23 is patentable.

**C. Claims 37 and 43 are patentable over Schulz in view of Blaustein and further in view of FR '303**

Finally, the Office rejected claims 37 and 43 under 35 U.S.C. § 103(a) as being unpatentable over Schulz in view of Blaustein and further in view of French Patent No. 2,733,303 ("FR '303"). Claims 37 and 43 are directed to combustion plants. None of the references relied on by the Office teaches or suggests a combustion plant where a burner is fed with a flow of at least one instantaneously combusting fossil fuel, and where a flow of at least one instantaneously combusting non-fossil fuel is fed into said flow of at least one instantaneously combusting fossil fuel, as recited in claim 37. Further, none of the references relied on by the Office teaches or suggests a combustion plant having a system for supplying flow of at least one instantaneously combusting fossil fuel carried by a carrier fluid, as recited in claim 43.

Schulz teaches gasification of coal and organic solid waste formed into briquettes (Schulz, column 4, lines 29-38) which one skilled in the art would consider not to be an "instantaneously combusting" fuel form, as discussed previously. An instantaneously combusting fossil fuel is defined as the combustion of at least 90% by weight of the fuel material fed into a burner in less than 10 seconds. Specification, page 3, lines 35-38.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

In fact, Schulz teaches avoiding “fines,” i.e., small particle sizes. See e.g., Schulz, column 4, lines 57-58.

Blaustein is silent about the combustion apparatus and methods, but clearly teach forming “fuel pellets” (e.g., Blaustein, column 5, lines 34-40) and thereby exhibits the same contrary teaching as Schulz. Nothing in Blaustein teaches or suggests a flow of at least one instantaneously combusting fossil fuel, and a flow of at least one instantaneously combusting non-fossil fuel fed into said flow of at least one instantaneously combusting fossil fuel, as recited in claim 37, or an instantaneously combusting fossil fuel carried by a carrier fluid, as recited in claim 43.

Finally, FR ‘303 discloses an apparatus provided with a grid 3 on which household waste is placed and incinerated by a lower burner 21. An upper burner 22 burns fumes and gases developed by the combustion in order to avoid releasing of polluting fumes and gases in the air. FR ‘303 does not specify a solid waste fuel size much less teach or suggest use of an “instantaneously combusting” non-fossil fuel.

Therefore, the combination of Schulz or Blaustein with FR ‘303 would merely lead to a plant where the agglomerated non-instantaneously combusting fuel compositions of Schulz or Blaustein are incinerated over an extended period of time. Accordingly, claims 37 and 43 do not recite subject matter that is rendered obvious by the combination of Schulz, Blaustein, and FR ‘303, and are thus in condition for allowance.

**D. Claims 6, 18, and 28 are patentable under 35 U.S.C. § 112, first paragraph because they are supported by the Specification, claims, drawings, and ordinary skill in the art**

Claims 6, 18, and 28 stand rejected under 35 U.S.C. § 112, first paragraph, as not being supported by the Specification and claims as originally filed. Appellants

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

maintain that claims 6, 18, and 28 are supported by the Specification and claims as originally filed, and therefore comply with the standards of 35 U.S.C. § 112, first paragraph. Claims 6 and 18 are separately grouped from claim 28 because claim 28 depends from a base claim that is rejected on grounds different than the grounds of rejection of the base claim of claims 6 and 18. Accordingly, these claims do not stand or fall together.

These claims each recite the feature of a fossil fuel "selected from the group consisting of methane, fuel oil, fossil coal dust, and mixtures thereof." The disputed recitation is the term "and mixtures thereof." The Office argues that there is no support in the Specification for this recitation. However, the specification provides support in that the teaching of instantaneously combusting fuel material comprising at least one fossil fuel can be mixed. The Specification states, "...an instantaneously combusting fuel material, comprising at least one fossil fuel...." Specification, page 9, lines 7-8. The term "at least one" clearly suggests to one skilled in the art that more than one fossil fuel may be provided in the fuel material. For example, it clearly suggests that two or more types of fossil fuels may be provided in the fuel material. And one skilled in the art would also know that any fossil fuels provided in the fuel material would be mixed to provide a homogenous mixture.

In addition, FIG. 7 illustrates a methane supply flow (42A), a fuel oil supply flow (43A), a coal supply flow from mill (45), and an air supply flow from ventilator (22A), each providing its respective fuel to a boiler (18A). See FIG. 7; Specification, page 12, line 35-page 13, line 9. In FIG. 7, "only one system for supplying the methane gas, fuel oil and coal dust to the entire array of burners (12) has been represented."

Specification, page 13, lines 10-12. The Specification, therefore, suggests that a single supply system provides gas, oil, and coal to the burners (12). The Specification continues by stating that each burner could be provided with its own separate supply system. See Specification, page 13, lines 13-14. Because the Specification teaches that each burner could be provided with its own system, and that each system provides gas, oil, and coal to the burners, the Specification clearly suggests supplying "mixtures" of gas, oil, and coal. One skilled in the art would understand the Specification to mean that the gas, oil, and coal could be provided as "mixtures thereof," as recited in claims 6, 18, and 28.

Finally, FIG. 7 includes an oval-shaped schematic encompassing the methane supply flow (42A), the fuel oil supply flow (43A), the coal supply flow from mill (45), and the air supply flow from ventilator (22A). This oval, not described in the Specification, draws together and shows a relationship between the four flows. The relationship suggested by the schematic to one skilled in the art is that the methane, the fuel oil, the coal, and the air supply flows may be drawn together, at least, to provide "mixtures thereof."

Claims 6, 18, and 28 meet the requirements of 35 U.S.C. § 112, first paragraph because they are supported by the Specification and drawings as originally filed, and as would be interpreted by one skilled in the art.

#### **E. Conclusion**

The pending claims of the application are allowable over all the grounds of rejection. Applicants respectfully request that the Board reverse the rejections applied by the Office, and require that the claims be allowed.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this Appeal Brief, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

Dated: July 22, 2003

By: 

Dustin T. Johnson  
Reg. No. 47,684

Post Office Address (to which  
correspondence is to be sent)

Finnegan, Henderson, Farabow,  
Garrett & Dunner, L.L.P.  
1300 I Street, N.W.  
Washington, D.C. 20005  
(202) 408-4000

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

**APPENDIX**  
**PENDING CLAIMS**

1. (Amended) A fuel composition, comprising:  
from 40 to 95% by weight of a fossil fuel; and  
from 60 to 5% by weight of a non-fossil solid fuel including urban solid waste, and at least a further component selected from the group consisting of elastomeric polymer materials, non-elastomeric polymer materials and mixtures thereof,  
wherein at least 90% by weight of the fuel composition fed into a burner is combusted in less than 10 seconds.
2. (Twice amended) A composition according to Claim 1, in which the amount of said fossil fuel is between 50 and 90% by weight.
3. (Amended) A composition according to Claim, in which the amount of the said non-fossil solid fuel is between 50 and 10% by weight.
4. (Twice amended) A composition according to Claim 1, in which the amount of said fossil fuel is between 60 and 80% by weight.
5. (Amended) A composition according to Claim 1, in which the amount of the said non-fossil solid fuel is between 40 and 20% by weight.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

6. (Twice amended) A composition according to Claim 1, in which the fossil fuel is selected from the group consisting of methane, fuel oil, fossil coal dust, and mixtures thereof.

9. (Twice amended) A composition according to Claim 1, in which the non-fossil solid fuel has an apparent density equal to or less than  $0.6 \text{ g/cm}^3$ .

10. (Amended) A fuel composition, comprising:  
from 40 to 95% by weight of a fossil fuel; and  
from 60 to 5% by weight of particles less than 1 mesh in size of a non-fossil solid fuel including urban solid waste, and at least a further component selected from the group consisting of elastomeric polymer materials, non-elastomeric polymer materials, and mixtures thereof,  
wherein at least 90% by weight of the fuel composition fed into a burner is combusted in less than 10 seconds.

11. (Twice amended) A composition according to Claim 10, in which at least 90% by weight of the particles are smaller than 2 mesh in size.

12. (Twice amended) A composition according to Claim 10, in which at least 50% by weight of the particles are smaller than 4 mesh in size.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

13. (Twice amended) A composition according to Claim 10, in which the particles comprise non-elastomeric polymer material of less than 5 mm in size.

14. (Twice amended) A composition according to Claim 10, in which the amount of said fossil fuel is between 50 and 90% by weight.

15. (Twice amended) A composition according to Claim 10, in which the amount of said non-fossil solid fuel is between 50 and 10% by weight.

16. (Twice amended) A composition according to Claim 10, in which the amount of said fossil fuel is between 60 and 80% by weight.

17. (Twice amended) A composition according to Claim 10, in which the amount of said non-fossil solid fuel is between 40 and 20% by weight.

18. (Twice amended) A composition according to Claim 10, in which the fossil fuel is selected from a group consisting of methane, fuel oil, fossil coal dust and mixtures thereof.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com



23. (Twice Amended) A combustion method comprising the steps of:  
feeding the flame of a burner of an instantaneous-combustion boiler  
with a flow of fuel composition including:

from 40 to 95% by weight of an instantaneously combusting  
fossil fuel; and

from 60 to 5% by weight of a non-fossil solid fuel made of  
urban solid waste and one or more other materials selected from the group consisting of  
elastomeric polymer materials, non-elastomeric polymer materials, and mixtures  
thereof, which has been suitably treated so as to be instantaneously combustible;

combusting at least 90% by weight of said fuel composition fed into  
the burner in less than 10 seconds.

24. (Amended) A combustion method according to Claim 23, in which  
the said non-fossil solid fuel consists of particles less than 1 mesh in size.

25. (Twice amended) A combustion method according to Claim 24, in  
which at least 90% by weight of said particles are less than 2 mesh in size.

26. (Twice amended) A combustion method according to Claim 24, in  
which at least 50% by weight of said particles are less than 4 mesh in size.

27. (Twice amended) A combustion method according to Claim 23, in  
which said particles comprise elastomeric polymer particles of less than 5 mm in size.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

28. (Twice amended) A combustion method according to Claim 23, in which the instantaneously combusting fossil fuel is selected from a group consisting of methane, fuel oil, fossil coal dust, and mixtures thereof.

34. (Amended) A combustion method comprising the steps of:  
feeding a fuel composition into a zone of a boiler, said zone having a predetermined temperature value and said fuel composition including:  
at least one instantaneously combusting fossil fuel, and  
at least one instantaneously combusting non-fossil fuel selected from the group consisting of urban solid waste, elastomeric polymer materials, non-elastomeric polymer materials, and mixtures thereof;  
combusting said fuel composition in said boiler, and  
generating an amount of heavy ash from said combustion step,  
wherein said predetermined temperature value is selected so that non-combusted materials are contained in said amount of heavy ash in an amount of less than 50% by weight.

35. (Twice amended) A combustion method according to Claim 34, in which said zone of the boiler into which said non-fossil fuel is fed has a temperature of not less than 1500°C.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

36. (Amended) A combustion method comprising the steps of:  
feeding a boiler with a fuel composition including:  
an instantaneously combusting fossil fuel, and  
an instantaneously combusting non-fossil fuel selected from the  
group consisting of urban solid waste, elastomeric polymer materials, non-elastomeric  
polymer materials, and mixtures thereof,  
combusting said fuel composition in said boiler,  
generating an amount of heavy ash from said combustion step,  
wherein said non-fossil fuel has a predetermined particle size so that non-  
combusted materials are contained in said amount of heavy ash in an amount of less  
than 50% by weight.

37. (Amended) A plant for combusting a fuel composition comprising  
at least one instantaneously combusting fossil fuel, and at least one instantaneously  
combusting non-fossil fuel selected from the group consisting of urban solid waste,  
elastomeric polymer materials, non-elastomeric polymer materials, and mixtures  
thereof, said plant comprising:

a boiler having at least one burner,  
a system for supplying said at least one burner with a flow of said at least  
one instantaneously combusting fossil fuel carried by a carrier fluid, and  
a system for feeding said at least one instantaneously combusting non-  
fossil solid fuel into said flow.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com

43. A plant for combusting a fuel composition comprising at least one instantaneously combusting fossil fuel, and at least one instantaneously combusting non-fossil fuel selected from the group consisting of urban solid waste, elastomeric polymer materials, non-elastomeric polymer materials, and mixtures thereof, said plant comprising:

a boiler comprising at least one burner and at least one fire area,

a system for supplying the fire area of said boiler with a flow of said at least one instantaneously combusting fossil fuel carried by a carrier fluid, and

a system for conveying said at least one instantaneously combusting non-fossil fuel into the fire area of said boiler.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
www.finnegan.com